Technical Information

MOTOROLA G24 DEVELOPER'S GUIDE

USING FTP WITH G24

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NA

Trademarks

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Preface

Manual Scope

This manual introduces the G24 AT commands, and describes how software developers can use these commands to communicate with the G24 device, and to create software applications that communicate with the G24 using these commands.

Note: The integrator should read the corresponding SW release notes for the G24 version he is using to get information about differences from this manual.

Target Audience

This manual is intended for software developers who communicate with the G24 device using the AT commands, and create applications to communicate with the G24 device using the AT commands.

Manual Organization

This manual contains the following chapters:

- "Preface" provides a scope for this manual, document convention, safety instructions and a liability notification.
- "Chapter 1: Using FTP with G24" introduces the FTP features.
- "Chapter 2: AT Commands Reference for FTP" provides a reference to all available FTP related AT commands, including examples, where relevant.

Applicable Documents

- G24 AT Commands Reference Manual - 6889192V28
- G24 Module Hardware Description – 6889192V27
- G24 Developer's Kit – 6889192V26

Contact Us

We at Motorola want to make this guide as helpful as possible. Keep us informed of your comments and suggestions for improvements.

For general contact, technical support, report documentation errors and to order manuals, use this email address:

M2M.CustomerCare@motorola.com

Motorola appreciates feedback from the users of our information.

Text Conventions

The following special paragraphs are used in this guide to point out information that must be read. This information may be set-off from the surrounding text, but is always preceded by a bold title in capital letters:

Note

Note: Presents additional, helpful, noncritical information that you can use.

Warning

Warning: Presents information to warn you of a potentially hazardous situation in which there is a possibility of personal injury.

Important

Important: Presents information to help you avoid an undesirable situation or provides additional information to help you understand a topic or concept.

Caution

Caution: Presents information to identify a situation in which damage to software, stored data, or equipment could occur, thus avoiding the damage.

Manual Banner Definitions

A banner text in the page footer under the book title (for example, **Preliminary** or **FOA**) indicates that some information contained in the manual is not yet approved for general customer use.

Field Service

For Field Service requests, use this email address:

n2csfs01@motorola.com

General Safety

Remember!. . . safety depends on you!

The following general safety precautions must be observed during all phases of operation, service, and repair of the equipment described in this manual. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the equipment. Motorola, Inc. assumes no liability for the customer's failure to comply with these requirements. The safety precautions listed below represent warnings of certain dangers of which we are aware. You, as the user of this product, should follow these warnings and all other safety precautions necessary for the safe operation of the equipment in your operating environment.

Ground the instrument

To minimize shock hazard, the equipment chassis and enclosure must be connected to an electrical ground. If the equipment is supplied with a three-conductor AC power cable, the power cable must be either plugged into an approved three-contact electrical outlet or used with a three-contact to two-contact adapter. The three-contact to two-contact adapter must have the grounding wire (green) firmly connected to an electrical ground (safety ground) at the power outlet. The power jack and mating plug of the power cable must meet International Electrotechnical Commission (IEC) safety standards.

> **Note:** Refer to *"Grounding Guideline for Cellular Radio Installations"* –Motorola part no. *68P081150E62*.

Do not operate in an explosive atmosphere

Do not operate the equipment in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

Do not service or adjust alone

Do not attempt internal service or adjustment unless another person, capable of rendering first aid is present.

Keep away from live circuits

Operating personnel must:

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- not replace components with power cable connected. Under certain conditions, dangerous voltages may exist even with the power cable removed
- always disconnect power and discharge circuits before touching them

Do not substitute parts or modify equipment

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Warning example:

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(*)including without limitation loss of use, loss of time, loss of data, inconvenience, commercial loss, lost profits or savings.

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2. Defects or damage from misuse, access to incompatible sources, accident or neglect.

3. Defects or damage from improper testing, operation, maintenance, installation, adjustment, unauthorized software applications or any alteration or modification of any kind.

4. Breakage or damage to antennas unless caused directly by defects in material or workmanship.

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7. Defects or damage due to moist, liquid or spills of food.

8. Control unit coil cords in the Product that are stretched or have the modular tab broken.

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Revision History

Manual Number

NA

Manual Title

Using FTP with G24

Version Information

The following table lists the manual version, date of version, and remarks about the version.

Revision History

Version	Date Issue	Remarks
A	July 15, 2007	Initial Release

Chapter 1: Using FTP with G24

FTP Connection

Overview

G24 implements FTP connection feature, based on RFC959 standard, and operates as a FTP client. When connected to a remote FTP server, G24 is able to receive information about remote file system, manage it and perform files transfer operations.

Manage FTP Connection

AT+FTPOPEN command is used to open a FTP connection with a remote FTP server. When G24 performs FTP connection establish procedure, it allocates two TCP sockets. One of them is used for FTP control channel, the other - for FTP data channel (listen mode). FTP control channel port has default identification number (ID) - 21 for source (client) and destination (server) sides, but user is able to configure control channel port ID for client as well as for server by pass new source control port and/or new destination control port id as AT+FTPOPEN command optional parameters. This is applicable, when remote FTP server able to accept FTP connection over non-standard (other, then 21) ports. FTP data channel port has default identification number (ID) - 20 for source (client) side, but user be able to configure data channel port id by pass new source data port id as AT+FTPOPEN command optional parameter. This is applicable, when remote FTP server unable to establish data connection to some port IDs. Following example shown how to use AT+FTPOPEN command in various situations.

- To open a FTP connection with a remote FTP server, use the following settings:

destination URL	= someftpsite.com	(mandatory)
user	= anonymous	(mandatory)
password	= qwerty@email.com	(mandatory)
account	= ""	(optional, default value)
source control port id	= 21	(optional, default value)
destination control port id	= 21	(optional, default value)
source data port id	= 20	(optional, default value)

AT+FTPOPEN = "someftpsite.com","anonymous","qwerty@somemail.com",,,,

- To open a FTP connection with a remote FTP server, use the same mandatory settings, but customize source control and data ports id:

source control port id	= 1300	(optional, custom value)
destination control port id	= 21	(optional, default value)
source data port id	= 1302	(optional, custom value)

   AT+FTPOPEN = "someftpsite.com","anonymous","qwerty@somemail.com",,1300,,1302

When FTP connection establish, G24 remains in command mode. This mode used for performing most of FTP AT commands. Only AT+FTPLIST, AT+FTPSTOR and AT+FTPRETR commands switch G24 to online data mode. Generally, G24 returns to command mode after the data mode caused command execution finished, but user be able to interrupt online data mode (and close actual FTP connection) by change DTR line status from ON to OFF, when AT&D settings = 2 or 3.

The G24 operation modes switching is shown in Figure 1-1.
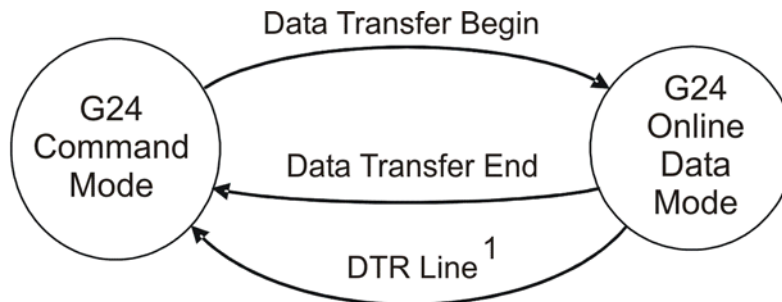
Figure 1-1: G24 Operation Modes Switching

Note: [1]AT&D settings = 2 or 3. The operation closes actual FTP connection and switches G24 to command mode.
AT&D settings = 1 does not affect.

Established FTP connection can be closed when G24 is in command mode by AT+FTPCLOSE command or by changing DTR line status from ON to OFF when data transfer operations is performed (G24 is in online data mode).

Manage Remote File System

When FTP connection is established, the user is able to manage file system on the remote FTP server, like create, remove, change directory, rename or delete a file. The following FTP commands are used for remote file system management purpose.

+FTPCWD - changes working directory on remote server.

+FTPMKD - create a new directory on remote server.

+FTPRMD - removes existing directory on remote server.

+FTPPWD - returns actual working directory name from remote server.

+FTPCDUP - changes working directory on remote server up to parent directory.

+FTPDEL - delete a file on remote server.

+FTPREN - rename a file on remote server.

File Transfer Operations

The file transfer operation allows the user to transfer a file over an established FTP connection. To avoid end-of-file detection problem for user in download case and for G24 in upload case, G24 implements a special format of transferred files over FTP connection. The format proposed "escaping" one of ASCII symbols from file context and using the "escaped" symbol as end-of-file marker. An escaping algorithm described below.

The algorithm defines two special characters: EOF (end-of-file character) and ESC (escape character). EOF symbol is hexadecimal 0x03 (decimal 3) ASCII ETX symbol and ESC symbol is hexadecimal 0x10 (decimal 16) ASCII DLE symbol - not to be confused with the ASCII ESCape character.

To encode a file to FTP File Transfer Format, the user or G24 shall read each data byte from source file and perform following operation:

- When a data byte has the same code as EOF character, a two byte sequence of ESC and EOF characters is sent instead.
- When a data byte has the same code as ESC character, a two byte sequence of ESC and ESC characters is sent instead.
- When end of file is reach, EOF character is sent.

To decode a file from FTP File Transfer Format, the user or G24 shall read each data byte from source file and perform following operation:

- When a data byte has the same code as ESC character and next data byte is ESC or EOF character, the first byte should be ignored.
- When a data byte has the same code as EOF character and previous data byte is not ESC character, end of file is reach.

The process is illustrated in Figure 1-2.
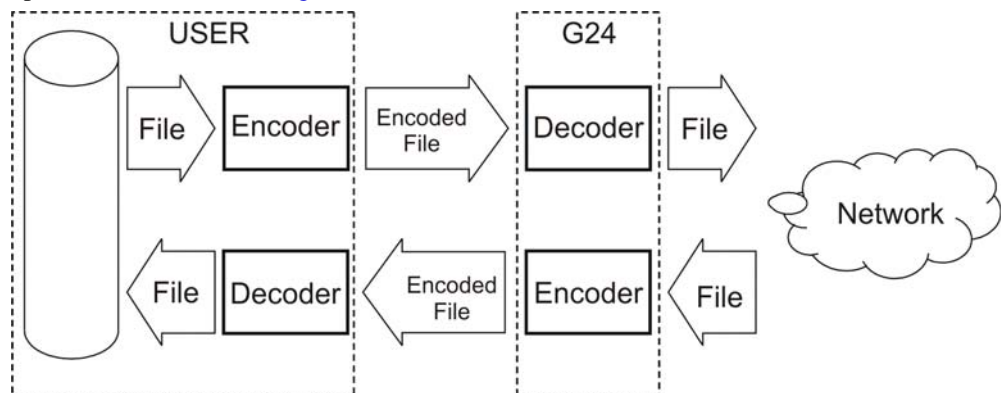
Figure 1-2: Files Transfer Process

Other FTP Operations

G24 provides +FTPINFO feature, allows user to receive more information about FTP connection and FTP commands execution. When the feature enables, all FTP commands, send by G24 to remote server and all FTP responses, receives by G24 from remote server are prints to user as +FTPINFO: <text> unsolicited response. Use AT+FTPINFO=1 for the feature enable, and AT+FTPINFO=0 for the feature disable in any G24 operation time, when G24 is in command mode.

Interaction with Other MIP Commands

Interaction with +MIPODM Command

The external ODM session is prohibit when FTP feature executed, because FTP feature data connection based on socket, opened for ODM (internal ODM session), so when G24 receives +MIPODM command within FTP connection, the error code: 302 (FTP session is active) returns to user.

Interaction with +MIPOPEN and +MIPCLOSE Commands

User cannot initiate FTP connection with +MIPOPEN command as well as close FTP connection with +MIPCLOSE command. However, +MIPOPEN and +MIPCLOSE commands in "read" state still indicate actually used / unused sockets include sockets, allocated for active FTP connection:

- AT+MIPOPEN? indicates inactive sockets (include allocated for active FTP connection)
- AT+MIPCLOSE? indicates active sockets (include allocated for active FTP connection)

When G24 receives +MIPCLOSE command for close a socket, used within FTP connection, the error code: 302 (FTP session is active) returns to user.

Chapter 2: AT Commands Reference for FTP

FTP AT Commands Alphabetical Summary

The following table contains an alphabetical list of all the G24 FTP AT commands.

Table 2-1: FTP AT Commands (Alphabetical)

AT Command	Description	Page
+FTPCDUP	This command causes the G24 to request the remote FTP server to change the working directory up.	Page 2-12
+FTPCLOSE	This command causes G24 to close FTP connection.	Page 2-5
+FTPCWD	This command causes the G24 to request the remote FTP server to change the working directory.	Page 2-7
+FTPDEL	This command causes the G24 to request the remote FTP server to delete a file.	Page 2-12
+FTPINFO	This command causes the G24 to enable or disable FTP unsolicited indication to the user.	Page 2-6
+FTPLIST	This command causes the G24 to request the remote FTP server to send a list.	Page 2-15
+FTPMKD	This command causes the G24 to request the remote FTP server to create a new directory.	Page 2-9
+FTPNOOP	This command causes the G24 to request the remote FTP server to do nothing.	Page 2-19
+FTPOPEN	This command causes G24 to open a FTP connection with a remote FTP server.	Page 2-3
+FTPPWD	This command causes G24 to request the remote FTP server to return the working directory name.	Page 2-11

Table 2-1: FTP AT Commands (Alphabetical) (Cont.)

AT Command	Description	Page
+FTPREN	This command causes the G24 to request the remote FTP server to rename a file.	Page 2-13
+FTPRETR	This command causes the G24 to request the remote FTP server to send a file to the G24.	Page 2-21
+FTPRMD	This command causes the G24 to request the remote FTP server to remove a directory.	Page 2-10
+FTPSTAT	This command causes the G24 to request the remote FTP server to send status.	Page 2-16
+FTPSTOR	This command causes the G24 to request the remote FTP server to store a file.	Page 2-20
+FTPSYST	This command causes the G24 to request the remote FTP server to send the operating system type.	Page 2-18

FTP (File Transfer Protocol)

Session Commands

+FTPOPEN, Open FTP Connection Between G24 (FTP client) and Remote FTP Server

This command causes G24 to open a FTP connection with a remote FTP server, based on given parameters.

Notes:

- Only one FTP connection can be in progress at the same time.

- FTP connection is based on two TCP sockets: one of them configured for Online Data Mode.

- Online Data Mode connection is prohibited when FTP connection is in progress and vice versa.

Command Type	Syntax	Response/Action	Remarks
Set	**+FTPOPEN= <"destination_ip/url">,<"username">, <"password">[,<"account">,<source_control_port>,<destination_control_port>, <source_data_port>]**	**OK** **+FTPOPEN: <connection_status>** Or: **ERROR: <error_code>**	Command execution result (connection status) return to the user as an unsolicited response: **1** - connection success **0** - connection fail
Read	**+FTPOPEN?**	**+FTPOPEN: <connection_status>** **OK**	Returns FTP connection status: **1** - connection success **0** - connection fail
Test	**+FTPOPEN=?**	**+FTPOPEN: (<destination_ip/url>), (<username>),(<password>) [,(<account>), (range of supported port's), (range of supported port's), (range of supported port's)] OK**	Returns command format.

The following table shows the +FTPOPEN parameters.

Table 2-2: +FTPOPEN Parameters

<Parameter>	Description	Range
destination_ip/url[1]	IP or URL of remote FTP site.	IP address in dotted decimal notation form: XXX.XXX.XXX.XXX.
		URL: ASCII chars, max length is **255** octets.
username[2]	Username for FTP login procedure.	ASCII chars, max length is **255** octets.
password[3]	Password for FTP login procedure.	ASCII chars, max length is **255** octets.
account[4]	User Account for FTP login procedure.	ASCII chars, max length is **255** octets.
source_control_port[5]	Port for FTP control connection on source side.	Number in **0-65535** range.
destination_control_port[5]	Port for FTP control connection on remote side.	Number in **0-65535** range.
source_data_port[6]	Port for FTP data connection on source side.	Number in **0-65535** range.

Notes:

[1] Mandatory parameter.

[2] Mandatory parameter. Use "anonymous" user name for anonymous connection.

[3] Mandatory parameter. For anonymous connection use **"guest"** or valid e-mail address or an empty string (**""**).

[4] Optional parameter, default value is empty string (**""**).

[5] Optional parameter, default value is 21.

[6] Optional parameter, default value is 20.

Example

The first example illustrates FTP connection open success case.

AT+FTPOPEN="someftpsite.com","anonymous","qwerty@somemail.com",,,,
OK
+FTPOPEN: 1

The second example illustrates FTP connection open error case, because another FTP connection is already opens. The AT+CMEE=2 command enables verbose error report.

AT+CMEE=2
OK

AT+FTPOPEN="someftpsite.com","anonymous","qwerty@somemail.com",,,,
OK

+FTPOPEN: 1

AT+FTPOPEN="anotherftpsite.com","anonymous","qwerty@somemail.com",,,,
+CME ERROR: FTP session is active

+FTPCLOSE, Close Established FTP Connection Between G24 (FTP client) and Remote FTP Server

This command causes G24 to close FTP connection, when no data transfer occurred at that same time. When data transfer is in progress, use DTR line for closing FTP connection.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPCLOSE	OK +FTPCLOSE: <connection_status> Or: ERROR: <error_code>	Command execution result return to the user as an unsolicited response: **1** - connection success **0** - connection fail
Read	+FTPCLOSE?	ERROR	Not supported
Test	+FTPCLOSE=?	ERROR	Not supported

Example

The first example illustrates FTP connection close success case.

AT+FTPCLOSE
OK

+FTPCLOSE: 1

The second example illustrates FTP connection close error case, because no FTP connection was open. The AT+CMEE=2 command enables verbose error report.

```
AT+CMEE=2
OK

AT+FTPCLOSE
+CME ERROR: FTP session is inactive
```

+FTPINFO, FTP Unsolicited Indication Enable/Disable

This command causes the G24 to enable or disable FTP unsolicited indication to the user. FTP unsolicited indication is used for debugging the FTP session and, when the indication is enabled, the G24 will show to user all FTP commands, send to remote site and all FTP responses received from the remote side.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPINFO=<indication>	OK Or: ERROR: <error_code>	Enables/disables FTP unsolicited indication: **0** - Indication disabled **1** - Indication enabled When indication is enabled, G24 will send the user all FTP commands and responses by the following unsolicited response format: +FTPINFO: <data>
Read	+FTPINFO?	+FTPINFO: <indication> OK	Returns FTP indication status: **0** - Indication disabled **1** - Indication enabled
Test	+FTPINFO=?	+FTPINFO: (range of supported <indication_status>s) OK	Return command format.

The following table shows the +FTPINFO parameters.

<u>**Table 2-3: +FTPINFO Parameters**</u>

<Parameter>	Description	Range
Indication status	FTP unsolicited indication status.	Numeric in **0-1** range.

Example

The example illustrates FTP connection open success case, when FTP unsolicited indication is enabled.

AT+FTPINFO=1
OK

AT+FTPOPEN="someftpsite.com","anonymous","qwerty@somemail.com",,,,
OK

+FTPINFO: 220-

+FTPINFO: 220-Welcome to someftpsite.com!

+FTPINFO: 220-

+FTPINFO: 220 someftpsite.com FTP server (SecureMb FTP Version 1.0) ready.

+FTPINFO: USER anonymous

+FTPINFO: 331 Guest login ok, send your complete e-mail address as password.

+FTPINFO: PASS qwerty@somemail.com

+FTPINFO: 230 Guest login ok, access restrictions apply.

+FTPOPEN: 1

+FTPCWD, Change Working Directory

This command causes the G24 to request the remote FTP server to change the working directory in accordance to a given name.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPCWD=<directory_name>	OK +FTPCWD: <result> Or: ERROR: <error_code>	<directory_name> parameter consists of the directory name as well as the directory path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	+FTPCWD?	ERROR	Not supported
Test	+FTPCWD=?	+FTPCWD: (<"directory name">) OK	Returns command format.

The following table shows the +FTPCWD parameters.

Table 2-4: +FTPCWD Parameters

<Parameter>	Description	Range
Directory name	Name of directory to be changed on the remote side.	String, max length is **255** octets.

Example

The first example illustrates change in working directory success case.

AT+FTPCWD="data"
OK

+FTPCWD: 1

The second example illustrates change working directory fail case; because the given directory name was not found on the remote server.

AT+FTPCWD="user"
OK

+FTPCWD: 0

The third example illustrates change working directory fail case; because no FTP connection was open. The AT+CMEE=2 command enables verbose error report.

AT+CMEE=2
OK

AT+FTPCWD="data"
+CME ERROR: FTP session is inactive

+FTPMKD, Make Directory

This command causes the G24 to request the remote FTP server to create a new directory in accordance to a given name.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPMKD=<directory_name>	OK +FTPMKD: <result> Or: ERROR: <error_code>	<directory_name> parameter consists of the directory name as well as the directory path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	+FTPMKD?	ERROR	Not supported
Test	+FTPMKD=?	+FTPMKD: (<"directory name">) OK	Returns command format.

The following table shows the +FTPMKD parameters.

Table 2-5: +FTPMKD Parameters

<Parameter>	Description	Range
Directory name	Name of directory to be created on the remote side.	String, max length is **255** octets.

Example

The first example illustrates make new directory success case.

AT+FTPMKD="somedir"
OK

+FTPMKD: 1

The second example illustrates make new directory fail case, because the directory name already present on the remote server.

AT+FTPMKD="somedir"
OK

+FTPMKD: 0

+FTPRMD, Remove Directory

This command causes the G24 to request the remote FTP server to remove a directory in accordance to a given name.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPRMD=<directory_name>	**OK** **+FTPRMD: <result>** **Or:** **ERROR: <error_code>**	<**directory_name**> parameter consists of the directory name as well as the directory path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	+FTPRMD?	**ERROR**	Not supported
Test	+FTPRMD=?	**+FTPRMD: (<"directory name">)** **OK**	Returns command format.

The following table shows the +FTPRMD parameters.

Table 2-6: +FTPRMD Parameters

<Parameter>	Description	Range
Directory name	Name of directory to be removed on the remote side.	String, max length is **255** octets.

Example

The first example illustrates remove directory success case.

AT+FTPRMD="somedir"
OK

+FTPRMD: 1

The second example illustrates remove directory fail case, because the directory name was not found on the remote server. FTP unsolicited indication enabled.

AT+FTPINFO=1
OK

AT+FTPRMD="somedir"
OK

+FTPINFO: RMD 1

+FTPINFO: 550 1: No such file or directory.

+FTPRMD: 0

+FTPPWD, Print Working Directory

This command causes G24 to request the remote FTP server to return the working directory name.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPPWD	**OK** **...** **+FTPPWD: <result>[,<directory_name>]** **or** **ERROR: <error_code>**	**<directory_name>** parameter consists of the directory name as well as the directory path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success **2** - text message follows **<directory_name>** parameter follows only when **<result> = 2**
Read	+FTPPWD?	**ERROR**	Not supported
Test	+FTPPWD=?	**ERROR**	Not supported

Example

The example illustrates print working directory success case.

AT+FTPPWD
OK

+FTPPWD: 2, "/home/somedir" is current directory.
+FTPPWD: 1

+FTPCDUP, Change Directory Up

This command causes the G24 to request the remote FTP server to change the working directory up.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPCDUP	**OK** **...** **+FTPCDUP: \<result>** **or** **ERROR: \<error_code>**	The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	+FTPCDUP?	**ERROR**	Not supported
Test	+FTPCDUP=?	**ERROR**	Not supported

Example

The example illustrates change working directory up success case.

AT+FTPCDUP
OK

+FTPCDUP: 1

+FTPDEL, Delete File

This command causes the G24 to request the remote FTP server to delete a file, in accordance to a given name.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPDEL=\<file_name>	**OK** **...** **+FTPDEL: \<result>** **or** **ERROR: \<error_code>**	**\<file_name>** parameter consists of the file name as well as the file path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	+FTPDEL?	**ERROR**	Not supported
Test	+FTPDEL=?	**+FTPDEL: (<"file name">)** **OK**	Return command format

The following table shows the +FTPDEL parameters.

<u>**Table 2-7: +FTPDEL Parameters**</u>

<Parameter>	Description	Range
File name	Name of file to be deleted on the remote side.	String, max length is **255** octets.

Example

The example illustrates delete file success case.

AT+FTPDEL="somefile"
OK

+FTPDEL: 1

+FTPREN, Rename File

This command causes the G24 to request the remote FTP server to rename a file, in accordance to given parameters.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPREN=<file_name_from>, <file_name_to>	OK ... +FTPREN: <result> or ERROR: <error_code>	<file_name_from> and <file_name_to> parameters consists of the file name as well as the file path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	+FTPREN?	ERROR	Not supported
Test	+FTPREN=?	+FTPREN: (<"file name from">), (<"file name to">) OK	Return command format

The following table shows the +FTPREN parameters.

Table 2-8: +FTPREN Parameters

<Parameter>	Description	Range
File name from	**Old** name of file to be renamed on the remote side.	String, max length is **255** octets.
File name to	**New** name of file to be renamed on the remote side.	String, max length is **255** octets.

Example

The first example illustrates rename file success case.

AT+FTPREN="somefile.name","anotherfile.name"
OK

+FTPREN: 1

The second example illustrates rename file fail case, because the file name was not found on the remote server. FTP unsolicited indication enabled.

AT+FTPINFO=1
OK

AT+FTPREN=" somefile.name","anotherfile.name"
OK

+FTPINFO: RNFR somefile.name

+FTPINFO: 550 somefile.name: No such file or directory.

+FTPREN: 0

+FTPLIST, Request List

This command causes the G24 to request the remote FTP server to send a list, in accordance to a given parameter.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPLIST [=<file/directory name>]	**OK** **...** **+FTPLIST: <result>** **<list of directory/files>** **...** **+FTPLIST: <result>** **or** **ERROR: <error_code>**	Parameter consists of the file/directory name as well as the file/directory path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success **2 -** data follows
Read	+FTPLIST?	**ERROR**	Not supported
Test	+FTPLIST=?	**+FTPLIST: (<"file/directory name">)** **OK**	Return command format

Notes:

- Parameter is optional. When +FTPLIST command without a parameter is entered, G24 requests the remote side to return the last requested list.

- The command execution result returns to the user as an unsolicited response (command mode), as well as a list in data mode.

- When +FTPLIST command is executed, a requested list is being sent to the user when G24 is in data mode, immediately after +FTPLIST: 2 unsolicited response, but before +FTPLIST: 1 unsolicited response.

The following table shows the +FTPLIST parameters.

Table 2-9: +FTPLIST Parameters

<Parameter>	Description	Range
File/directory name	Name of file or directory on the remote side for list request.	String, max length is **255** octets.

Example

The first example illustrates get list for specific file success case.

AT+FTPLIST="somefile.name"
OK

+FTPLIST: 2
-rw-rw-r--   1 1001   0 Mar 26 2006 somefile.name

+FTPLIST: 1

The second example illustrates get list for all files success case.

AT+FTPLIST="*.*"
OK

+FTPLIST: 2
-rw-rw-r--   1 1001   129886 Mar 23 06:20 somefile1.name
-rw-rw-r--   1 1001   4968 Jan 8 07:57 somefile2.name
-rw-rw-r--   1 1001   23948 Jan 8 07:32 somefile3.name
-rw-rw-r--   1 1001   0 Feb 7 01:56 somefile4.name
-rw-rw-r--   1 1001   204673 Jan 10 02:28 somefile5.name
-rw-rw-r--   1 1001   9348 Jul 19 2006 somefile6.name

+FTPLIST: 1

+FTPSTAT, Request Status

This command causes the G24 to request the remote FTP server to send status, in accordance to a given parameter.

Command Type	Syntax	Response/Action	Remarks
Set	**+FTPSTAT[=<file/directory name>]**	**OK** **...** **+FTPSTAT: <result>[,<status>]** **or** **ERROR: <error_code>**	Parameter (optional) consists of directory name as well as directory path (optional). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success **2 -** text message follows **<status>** parameter follows only when **<result>=2**
Read	**+FTPSTAT?**	**ERROR**	Not supported
Test	**+FTPSTAT=?**	**+FTPSTAT: (<"file/directory name">)** **OK**	Return command format

Note: Parameter is optional. When +FTPSTAT command without a parameter is entered, G24 requests the remote side to return a general system status.

The following table shows the +FTPSTAT parameters.

Table 2-10: +FTPSTAT Parameters

<Parameter>	Description	Range
File/directory name	Name of file or directory on the remote side for status request.	String, max length is **255** octets.

Example

When the user enters +FTPSTAT command without parameters, the last requested status within actual FTP connection returns. When there is first status request within actual FTP connection, the remote server returns general FTP connection status, like in the following example:

The first example illustrates +FTPSTAT command without parameter first time (for actual FTP connection) use. In this case general FTP connection status returns.

AT+FTPSTAT
OK

+FTPSTAT: 2, SecureMb FTP Version 1.0
+FTPSTAT: 2, Connected to name.provider.com (255.255.255.255)
+FTPSTAT: 2, Logged in as anonymous
+FTPSTAT: 2, TYPE: ASCII, FORM: Nonprint; STRUcture: File; transfer MODE: Stream
+FTPSTAT: 2, No data connection
+FTPSTAT: 2, 0 data bytes received in 0 files
+FTPSTAT: 2, 0 data bytes transmitted in 0 files
+FTPSTAT: 2, 0 data bytes total in 0 files
+FTPSTAT: 2, 30 traffic bytes received in 0 transfers
+FTPSTAT: 2, 535 traffic bytes transmitted in 0 transfers
+FTPSTAT: 2, 614 traffic bytes total in 0 transfers
+FTPSTAT: 1

The second example illustrates using +FTPSTAT command with a parameter containing a name of actually present on remote server file. In this case, the specific file status is returned.

AT+FTPSTAT="somefile.name"
OK

+FTPSTAT: 2,-rw-rw-r-- 1 1001 653793 May 2 03:33 somefile.name
+FTPSTAT: 1

The third example illustrates using +FTPSTAT command with a parameter containing a name of file, which does not exist on the remote server file. In this case, the remote server returns "No such file or directory" string and command is finished successfully.

AT+FTPSTAT="anotherfile.name"
OK

+FTPSTAT: 2,/bin/ls: anotherfile.name: No such file or directory
+FTPSTAT: 1

The fourth example illustrates using +FTPSTAT command with a parameter containing an illegal file name. In this case, the remote server returns error and FTP connection is closed by the remote side.

AT+FTPSTAT="."
OK

+FTPSTAT: 0

+FTPCLOSE: 1

The fifth example illustrates using +FTPSTAT command for receiving the status of all files in the actual working directory.

AT+FTPSTAT="*.*"
OK

+FTPSTAT: 2,-rw-rw-r--   1 1001   129886 Mar 23 06:20 somefile1.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   4968 Jan 8 07:57 somefile2.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   23948 Jan 8 07:32 somefile3.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   0 Feb 7 01:56 somefile4.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   204673 Jan 10 02:28 somefile5.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   9348 Jul 19 2006 somefile6.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   653793 May 2 03:33 somefile7.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   645120 Mar 25 04:27 somefile8.name
+FTPSTAT: 2,-rw-rw-r--   1 1001   0 Mar 26 2006 somefile9.name
+FTPSTAT: 1

+FTPSYST, Request Remote FTP Server Operating System Type

This command causes the G24 to request the remote FTP server to send the operating system type.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPSYST	**OK** **...** **+FTPSYST:** **<result>[,<system>]** **or** **ERROR: <error_code>[3]**	The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success **2 -** text message follows **<system>** parameter follows only when **<result>=2**
Read	+FTPSYST?	**ERROR**	Not supported
Test	+FTPSYST=?	**ERROR**	Not supported

Example

The example illustrates the command execution.

AT+FTPSYST
OK

+FTPSYST: 2, UNIX Type: L8
+FTPSYST: 1

+FTPNOOP, No Operation

This command causes the G24 to request the remote FTP server to do nothing (possible use for PING).

Command Type	Syntax	Response/Action	Remarks
Set	**+FTPNOOP**	**OK** **...** **+FTPNOOP: <result>** **or** **ERROR: <error_code>**	The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success
Read	**+FTPNOOP?**	**ERROR**	Not supported
Test	**+FTPNOOP=?**	**ERROR**	Not supported

Example

The example illustrates the command execution.

AT+FTPNOOP
OK

+FTPNOOP: 1

+FTPSTOR, Store File On Remote FTP Server

This command causes the G24 to request the remote FTP server to store a file, sent by the G24.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPSTOR=<file_name>, [<file_type>]	**OK** **...** **+FTPSTOR: <result>** **or** **ERROR: <error_code>**	**<file_name>** parameter consists of the file name as well as the file path (optional). **<file_type>** parameter is optional. Default value is **1** (binary). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success **2 -** data connection (ODM) enabled
Read	+FTPSTOR?	**ERROR**	Not supported
Test	+FTPSTOR=?	**+FTPSTOR: (<"file name">)[,(0-1)]** **OK**	Return command format

Notes:

The user can send a file to the G24 only when the G24 returns <result> = 2. In this case, the G24 switches to Online Data Mode and all data sent to RS232 transfers as-is to the remote server.

Important: Before transferring to the remote side, data file is converted (encoded), see "FTP Connection" on page 1-1. When end-of-file is reached, G24 switches back to Command Mode and return <result> = 1 (success case).

In any stage of file transfer, an error can occurre. In this case, G24 switches to Command Mode and <result> = 0 return to the user.

The following table shows the +FTPSTOR parameters.

Table 2-11: +FTPSTOR Parameters

<Parameter>	Description	Range
File name	Name of file to be stored on the remote side.	String, max length is **255** octets.
File type	Type of file (ASCII or Binary).	Numeric, in the range of **0-1** (0 = ASCII, 1 = Binary).

Example

The example illustrates the command execution. Requested file type is binary.

AT+FTPSTOR="somefile.name",1

+FTPSTOR: 2

The user sends a file with <end-of-file> here
+FTPSTOR: 1

+FTPRETR, Retrieve a File From a Remote FTP Server

This command causes the G24 to request the remote FTP server to send a file to the G24.

Command Type	Syntax	Response/Action	Remarks
Set	+FTPRETR=<file_name>, [<file_type>]	**OK** **...** **+FTPRETR: <result>** **or** **ERROR: <error_code>**	**<file_name>** parameter consists of the file name as well as the file path (optional). **<file_type>** parameter is optional. Default value is **1** (binary). The command execution result return to the user as an unsolicited response: **0** - operation fails **1** - operation success **2 -** data connection (ODM) enabled
Read	+FTPRETR?	**ERROR**	Not supported
Test	+FTPRETR=?	**+FTPRETR: (<"file name">)[,(0-1)]** **OK**	Return command format

Notes:

> The user can store a file, received from G24 immediately after G24 returns <result> = 2. In this case G24 switches to Online Data Mode and all data, received from RS232 is the requested file.

> **Important:** The user converts (decode) the received data file for end-of-file detect, see "FTP Connection" on page 1-1. When the remote FTP server closes data connection, G24 switches back to Command Mode and returns <result> parameter = 1 (success case).

> In any stage of file transfer, an error can occurred. In this case, G24 switchs to Command Mode and <result> = 0 return to the user.

The following table shows the +FTPRETR parameters.

Table 2-12: +FTPRETR Parameters

<Parameter>	Description	Range
File name	Name of file to be retrieved from the remote side.	String, max length is **255** octets.
File type	Type of file (ASCII or Binary).	Numeric, in the range of **0-1** (0 = ASCII, 1 = Binary).

Example

The example illustrates the command execution. Requested file type is binary.

AT+FTPRETR="somefile.name",1

+FTPRETR: 2
....
....
....
<ETX>
+FTPRETR: 1

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